



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/752,359	12/30/2000	Gary Cao	042390P9473	8440

7590 08/22/2006

Michael A. Bernadicou
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP
Seventh Floor
12400 Wilshire Boulevard
Los Angeles, CA 90025-1026

EXAMINER

RAO, SHRINIVAS H

ART UNIT	PAPER NUMBER
----------	--------------

2814

DATE MAILED: 08/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/752,359

Applicant(s)

CAO ET AL.

Examiner

Steven H. Rao

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

Applicants' amendment filed on June 08, 2006 has been entered and forwarded to the Examiner on June 15, 2006 .

Therefore claim 1 as amended by the amendment and claims 2 to 11 as previously filed are currently pending in the Application.

Claims 12-16 were previously cancelled.

Claim Rejections - 35 USC Section 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action.

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satya et al. (U.S. Patent No. 6,528,818, herein after Satya) and Browning et al. (U.S. Patent No. 5,580,829 herein after Browning), both previously applied and further in view of Stearns et al. (U.S. Patent No. 5,715,385, herein after Stearns) presently newly applied.

With respect to claim 1 Satya describes a structure comprising: a first set of features disposed in a scribe line, (Satya abstract line 2-4, Satya col. 37 lines 28 to 30)

Art Unit: 2814

said first set of features being a subset of product features, (Satya figure 27, etc.) and , a second set of features disposed in said scribe line and merged directly into said first set of features, (Satya abstract lines 6-8, Satya col. 37 lines 28 to 30) , said second set of features differing from .said first set of features in pattern factor (Satya figure 27, etc and Satya abstract lines 6-8, Satya col. 37 lines 28 to 30 , similar to applicants' " pattern factor " defined in Applicants' specification as page 9 lines 1-2 as "Pattern factor refers to the percentage of total area of features and spaces therefore pattern factor for Satya would include total area of features and spaces of 245- first set and those of second set 255 and the total percentage thereof, see also Applicants' specification page 8 lines 19-end, etc.) .

that is occupied by the interior of the features. Polarity refers to placement of the Satya does not specifically mention or describe the second set of features occupying a smaller area than the first set.

However Browning in figure 4 and col. 4 lines 40-52 describes the second set of features occupying a smaller area than the first set (i.e. first set is larger oversize by about 10% to reduce the amount of extra metallic material deposited on dice such that bowing is eliminated and human error is virtually eliminated by creating the second mask key . (Browning col.2 lines 35-40).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include Browning's second set occupying a smaller area than said first set, in Satya's device to reduce the amount of extra metallic material deposited on dice such that bowing is eliminated and human error is virtually eliminated by creating

Art Unit: 2814

the second mask key . (Browning col.2 lines 35-40).

The remaining limitations of claim 1 are :

second set of features created by geometric transformation of said product features, including rotating , space scaling and linewidth scaling .

Satya and Browning do not specifically describe the presently newly added limitation second set of features created by geometric transformation of said product features, including rotating , space scaling and linewidth scaling.

However Stearns in col. 2 line 30 to col. 6 line 13 describes second set of features created by geometric transformation of said product features, including rotating , space scaling and linewidth scaling to perform the method at higher speeds reliability and an easier simpler less expensive method.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include Stearns' second set of features created by geometric transformation of said product features, including rotating , space scaling and linewidth scaling in Satya and Browning's devices , the motivation for the afore mentioned combination is to perform the method at higher speeds reliability and an easier simpler less expensive method (Stearns' col. 2 lines 35-38 and lines 45-47) .

With respect to claim 2 Satya describes the structure of claim 1 wherein critical dimension (CD) is measured on said first set of features. (Stay figure 2, col. 8 lines 15-22).

With respect to claim 3 Satya describes the structure of claim 1 wherein said first set of features and said second set of features differ in spaces between features. (

Art Unit: 2814

Staya figure 4D # 216 and 214)

With respect to claim 4 describes the structure of claim 1 wherein said first set of features and said second set of features differ in line widths of features. (Staya figure 4 D).

With respect to claim 5 describes the structure of claim 1 wherein said first set of features and said second set of features have the same pitch for features. (Satya figure 4C).

B. Claims 6-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satya et al. (U.S. Patent No. 6,528,818, herein after Satya) ,Browning et al. (U.S. Patent No. 5,580,829 herein after Browning) and in view of Stearns et al. (U.S. Patent No. 5,715,385, herein after Stearns) as applied to claims 1-5 above and further in view of Gallarada et al. (U.S. Patent No. 6,539,106 herein after Gallarada).

With respect to claim 6 Satya and Browning describe the structure of claim 1.

However Staya, Browning and Stearns do not describe wherein said first set of features comprises a first array of holes.

However, Gallarada in figure 4, col. 6 lines 36 to 48 describes wherein said first set of features comprises a first array of holes to identify defects of electrical significance, such as missing or incompletely formed contact holes and provide methods for inspection by matching of features between the images.

Therefore, it would have been obvious to one of ordinary skill in the art at the time for the invention to include Gallarada's teachings of first set of features comprises a first array of holes, in Satya' and Browning's first/second set of features. The motivation

Art Unit: 2814

to make the above substitution is to identify defects of electrical significance, such as missing or incompletely formed contact holes and provide methods for inspection by matching of features between the images. (Gallarada col. 6 lines 40-47).

With respect to claim 7 describes the structure of claim 6 wherein said first array of holes comprises a 5 by-5 square array of holes. (Gallarda figure 5).

With respect to claim 8 describes the structure of claim 6 wherein said second set of features comprises a second array of holes. (Gallarda figure 5).

With respect to claim 9 describes the structure of claim 8 wherein said second array of holes differs from said first array of holes in size of array. (Gallarda figure 5 #536 compared with other structures 526-534).

With respect to claim 10 describes the structure of claim 8 wherein said second array of holes differs from said first array of holes in space between holes. (Gallarda figures 18 A and E)

With respect to claim 11 describes the structure of claim 8 wherein said second array of holes differs from said first array of holes in line widths of holes.. (Staya figure 4 D).

Response to Arguments

Applicant's arguments filed 12/19/2005 have been fully considered but they are not persuasive for the following reasons :

All of Applicants' arguments are based on impermissible piece meal analysis of the references applied by stating (allegedly) what the applied Satya and other

Art Unit: 2814

references individually lack whereas the rejection is based on the combined teachings of the applied references.

It has been held that that one cannot show non-obviousness by attacking references individually where as here the rejections are based on combination of references. *In Re Keller*, 208 USPQ 871 (CCPA 1981).

Applicants' and Attorney George Chen (50, 807) are clearly mistaken when they state :

a "The Examiner is ^{cl} clearly mistaken in stating that Browning et al. teaches a second set (404) of features that occupies a smaller area than a first set (4X) of features. See Figure 4 and col. 4, lines 40-52. On the contrary, Browning et al. merely teaches that the first set has large features (10% oversized), but does not teach that the features occupy a larger area. ."

It is well known that the first set of features that are 10 % oversized have to occupy a larger area .

Applicants' and Attorney George Chen are respectfully requested to show evidence of any instance wherein 10 % bigger (oversized) feature will not occupy a larger area in the context of Applicants' specification as originally filed.

Further Applicants' and their attorney state :

"In the opinion of the Examiner, Stearns et al. teaches performing the operations of scaling transformation, or rotation on an entire image or on any part thereof. However, Stearns et al. only teaches an affine transformation which means that the transformation always preserves the parallelism of lines in the input and

Art Unit: 2814

output images. See col. 1 lines 30-37."

Stearns Col.1 lines 30-37 describes prior art :

BACKGROUND OF THE INVENTION

The use of computer graphics has grown dramatically in recent years, with numerous military, industrial, medical, commercial and consumer applications. Some such applications include computer image enhancements, flight trainers and simulators, medical imaging (e.g., CAT scanners), commercial video processing systems, video games, home computers, and many more. Image transformations redefine the spatial relationships between picture elements (pixels) in an image. Many of these systems make use of a class of image transformations called "affine" image transformations. An affine transformation (hereinafter referred to interchangeably as "transformation", and "affine image transformation") is any transformation which preserves the parallelism of lines in the input and output images. Such transformations include the operations of scaling in either or both dimensions, translation (moving), or rotation. These operations may be performed on an entire image or on any part thereof.

Therefore it is clear that by Applicants' and their Attornies by attempting to limit a patent's (Sterans') teachings to "Stearns et al. only teaches an affine transformation which means that the transformation always preserves the parallelism of lines in the input and output images. See col. 1 lines 30-37." are either unable to understand the difference between a what a patent teaches as background or prior art And the improvements over this background or prior art described in the patent or hopefully no one concludes that Applicants' and their attorney desire to mislead the patent Office.

Art Unit: 2814

Therefore all of Applicants' arguments are not persuasive and the combination of the applied references namely Satya et al. , Browning et l. and Stearns et al will produce the structure presently claimed by Applicants' in claims 1 and 2-5.

Applicants' also separately argue that because claims 2-5 depend upon allegedly allowable claim 1 , they are also allowable.

However as shown above claim 1 is not allowable, therefore dependent claims 2-5 are also not allowable.

Applicants' contention that for reasons set out above and found not persuasive after extensive review and analysis hold true for the same arguments here also and is incorporate here by reference for the sake of brevity and compact prosecution.

Applicants' contention in paragraph 5 of page 8 of their remarks section is not fully understood but nevertheless not persuasive.

Applicants' state :

"In the opinion of the Examiner Gallarda et al. teaches both a reference image of contact holes and a test image of contact holes. See col. 6, lines 36-48. However, the reference image is taken at a location on a die while the test image is taken at the same location on a different die."

The out standing rejection is :

With respect to claim 6 Satya and Browning describe the structure of claim 1. However Staya, Browning and Stearns do not describe wherein said first set of features comprises a first array of holes.

However, Gallarada in figure 4, col. 6 lines 36 to 48 describes wherein said first

Art Unit: 2814

set of features comprises a first array of holes to identify defects of electrical significance, such as missing or incompletely formed contact holes and provide methods for inspection by matching of features between the images.

Therefore, it would have been obvious to one of ordinary skill in the art at the time for the invention to include Gallarada's teachings of first set of features comprises a first array of holes, in Satya and Browning's first/second set of features. The motivation to make the above substitution is to identify defects of electrical significance, such as missing or incompletely formed contact holes and provide methods for inspection by matching of features between the images. (Gallarada col. 6 lines 40-47).

With respect to claim 7 describes the structure of claim 6 wherein said first array of holes comprises a 5 by-5 square array of holes. (Gallarda figure 5).

With respect to claim 8 describes the structure of claim 6 wherein said second set of features comprises a second array of holes. (Gallarda figure 5).

With respect to claim 9 describes the structure of claim 8 wherein said second array of holes differs from said first array of holes in size of array. (Gallarda figure 5 #536 compared with other structures 526-534).

With respect to claim 10 describes the structure of claim 8 wherein said second array of holes differs from said first array of holes in space between holes. (Gallarda figures 18 A and E)

With respect to claim 11 describes the structure of claim 8 wherein said second array of holes differs from said first array of holes in line widths of holes.. (Staya figure 4 D). “

Art Unit: 2814

Therefore it is not understood what the above rejection has to do with "the reference image is taken at a location on a die while the test image is taken at the same location on a different die".

Further it is noted that none of present pending claims recite any thing about where the reference image is taken . (claims 1-11). Therefore at the very least Applicants' this argument is not commensurate in scope with their presently recited claims. Therefore all of Applicants' arguments are not persuasive and all pending claims 1-11 Finally rejected.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 2814

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H. Rao whose telephone number is (571) 272-1718. The examiner can normally be reached on 8.00 to 5.00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fahmy Wael can be reached on (571) 272-1714. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

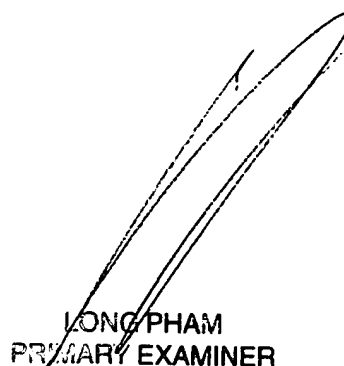
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Steven H. Rao

Patent Examiner

August 9, 2006.



LONG PHAM
PRIMARY EXAMINER